Quarterly Report - Public Page

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Contract Number: DTPH56-08-T-000002

Prepared for: U.S. DOT Pipeline and Hazardous Materials Safety Administration

Project Title: Enhanced Defect Detection and Sizing Accuracy Using Matrix Phased-Array (MPA) Ultrasonics Tools

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Results and Conclusions:

- Completed improved software 3-D modeling, simulation, design approach and tools for detection and virtual visualization of fabrication cracks, in-service developed stress corrosion cracking and dents with cracks in carbon steel pipes and welds using rigid and flexible MPA modules.
- Completed performance determinations using the prototype plastic wedge for probe Concept #1 (girth weld inspection from the outside diameter (OD) of the pipe surface). This concept provides a means for inspecting pipeline girth welds using two rigid 2-D MPA probes mounted on plastic wedges.
- EWI finalized the MPA module design for probe Concept #2 (inspection of pipe wall damage from the OD of the pipe surface). This concept uses a flexible 2-D MPA probe to inspect localized damaged areas of pipelines.

Plans for Future Activity:

- Order the MPA module for Concept #2.
- Continue working on functional specifications for MPA module design Concept #3 (inspection of pipe wall damage from the inside diameter of the pipe surface).
- Begin defining and optimizing detection and sizing capabilities of the proposed module concepts using the improved 3-D modeling, design and simulation software.
- Continue laboratory performance determination activities after receiving the Concept #2 MPA module.
- Resume field trial preparations.